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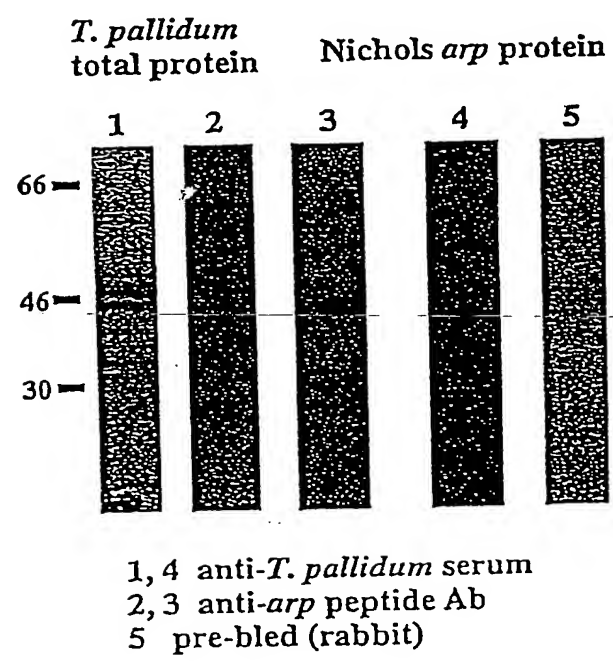


FIGURE 1

# *Characteristics of the arp protein*

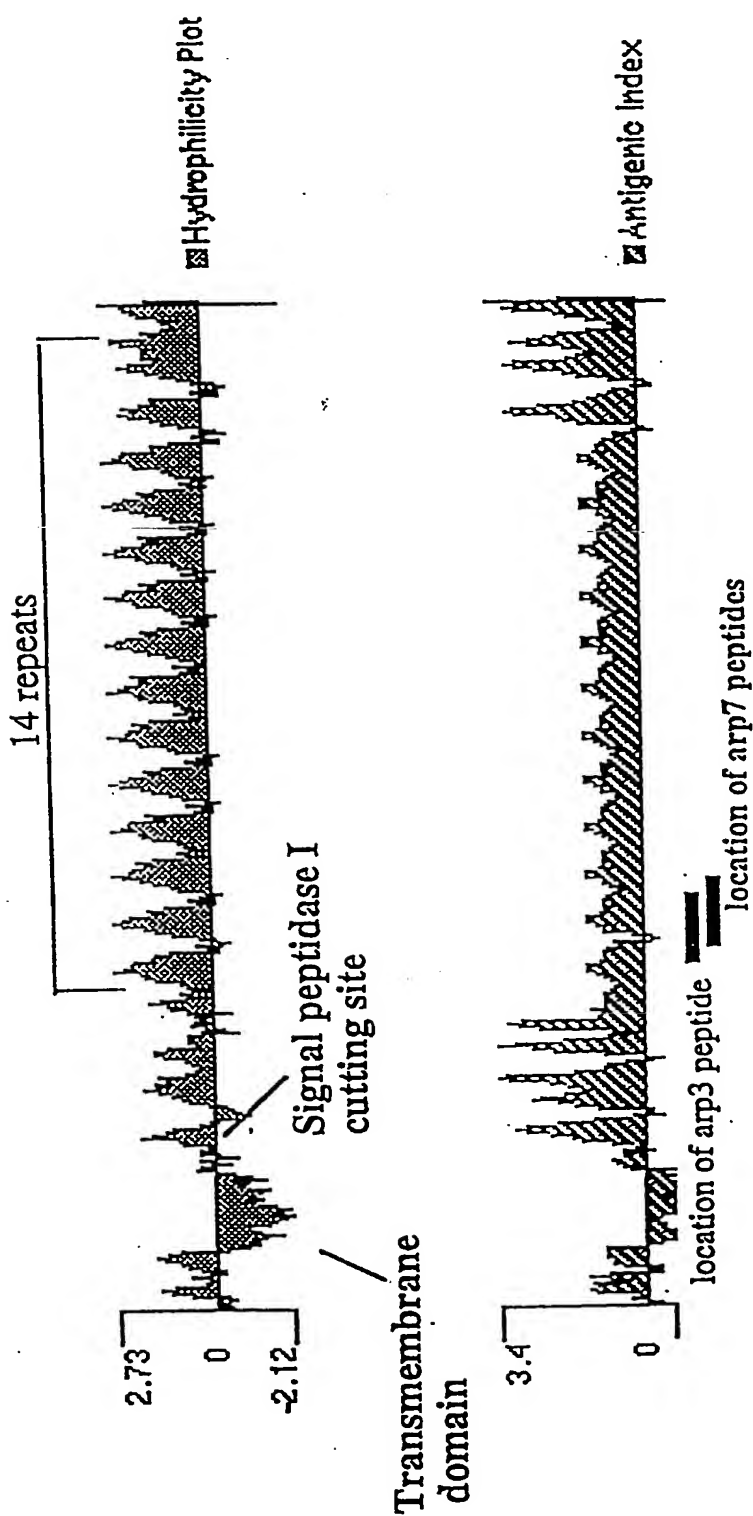


FIGURE 2

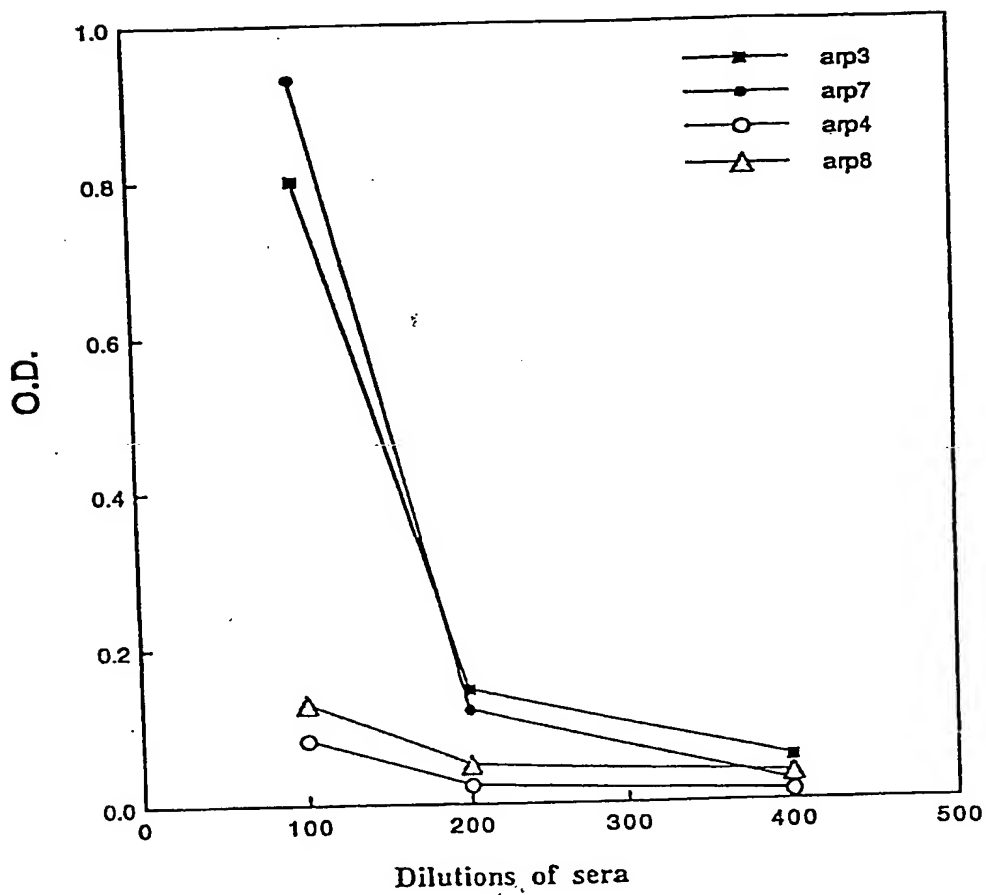
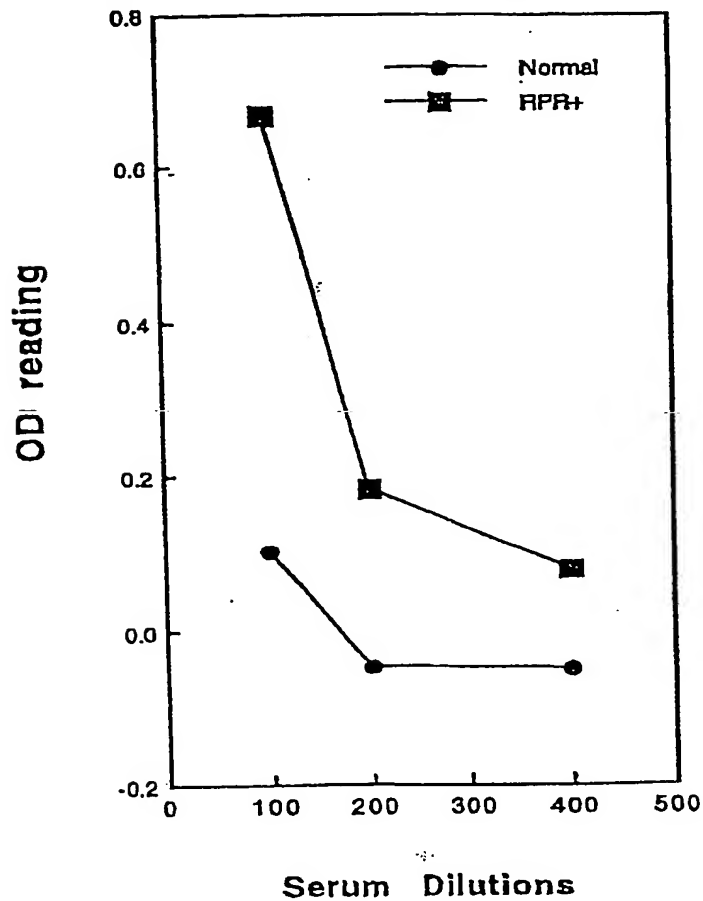


FIGURE 3

**Detection of anti-arp antibody  
in human serum using peptide arp#3**



**FIGURE 4**

GTGATGAC AGCTGACGCT CTCAGGTCTT GCACATATTG CGGGCTGGT GCGACATCT  
CTCCTGCCAC CTGCTACAGT GTCAGGTTCA TCGGGGAATT GAGGAACTG TTATCGGCG  
TCCCCATCTT CCGATACTGG ATCGGTGTGG GGGGGAGTAG GAGTGGGGAA GCGTCTGTGC  
TGTATCGCGC TGGTATGGCG CGCGTCTTGG TACCTCAGTG CGAAGGGAGT CAGTATGCT  
TACGTGCCCG TGCATCGCAG TGGGGGCTCT CAAGATTGCA GCATGACAC AGCAGTGGGC  
GATACGCTCC TTAACGCCCT CTTCGACGAG GGAATGGTGG TTACGGCAGT ACGCGGGT  
GTACACGACG GCCAGACTAT AGCAGAAATT GCTGCATGTT TTGAAGTAAT GCGCGATTAC  
GCGTGTGG TGCAGTTTCA TTCCGCTCGT CTCCTGGTG GGGAAAGCCC TACCTCCCGT  
GCGCGGGG CTTGGTCTTC AGAGAGGTTT CCGTCTGTGT GGACATTAGT GGATTTGCAT  
ACGCAAGCGC CGTGTGTCTA TCGTGTGTC GCCCATACA GGGAGAGTAT TCCCGTTCT  
GAGTGTGGT CAGTCGTTAC CCGTTGTATT GCGGACAGG CAATTCGTA CATACGGGT  
GGCACGAGCA CCGATACAGC CGGAGTTCAG TTATAGAAAA TAGGGAATAC GTAAGGTGTC  
TGCAGCGTC CTTCAGCTGG GAGGAGTCTT ATGATTA AAC GCCACATGTT CGCAAAAAG  
GGTGTCAAAG GAAGATCTTA CCGTGTAGG GTGAACACTG CGTTCCTAGT GCTTTGTGT  
GCTTCTGTCA CGCGCTTTT GGCTGTGTGG GAAGGGAATG CAGAAATTGG CCGCAGGGA  
AGTTTCTGCG AGGAAGG

[illegible]

GG GGGAACTCC CTTTACGCTC CTTGACCTAT CCGAGTCAGA AATTGTGGTT CCGGAGGAAC  
AGAAAGGACG TCGCATCCC CAGGTGATAC CCGAGGGTGC GCCACGTGGA CTGCAACCTG  
GTGAATACTA CGTACAGATT GCAGTCTTTC ATGACGCTAT CCAGGTGCAG AGCATTGTCC  
ACCGTTACGG GGTAGAATAC CCCATCGCAG TGGAGCAGGA CATCCATTGA GGTAAAGGTGC  
GTTTCACCGT ATGCGTCGGT CCGTGTCCAA AAGACGAACG CGGCGGGTA CTAGAGAACT  
TCCAAAGGTT TGGATTCAAG GACGCCTTTC TGA AAAAAGGC GCGATGATCA GTTGGGCCCT  
CCTCTTCCOC TCGTGACCGT GGTGACTGCG CCGGAAGGGG GCGCACAGAG CCGAAGGAA  
CGGAAGGGAA GGGGCAGACT TAACTATTTC TTTGTTTTTT TGAGCACGTA AAACGGGCGC  
ATCTCCTTG AAGGCTTTTC TGGCGGGGA GCGCCCATGT AGCGAACGGA GTTACTGTCT  
ATCAGCTCGT ACAGCTCTTT CTGCTGGCGGT GCCTTCGATT GCTCCGAGGA CACAAGCAG  
AGTTCGACAA TTCGTCTTC ACGTACCAT CACGTACCGC GATACGTAAG AGGAGAAGGT  
GCCGACTTCT TCTCAAGGGC AAGCTCTACC TTTTGCGCAG TGCCATCCGC GTTGAACGTC ACAGTC

FIGURE 5

MFVRSDMPFK NTAVEISNLE KNAKAQAVVI GHAGIPGLLV SLAPAAAAQL  
GIGVYQA VRV RVRTL GTVRG GSQTSQDGLS LASLPSRVPA RPAQRDPLSS  
PPAGHTVPEY RDTVIFDDPR LVSPLSR

Type I: 1, 2, 4, 7, 8  
Type II: 3, 5, 9, 10, 11, 12  
Type III: 13, 14  
Type IV: 6

EVE DAPKVVEPAS EREGGER  
EVE DAPKVVEPAS EREGGER  
EVE DVPKVVEPAS EREGGER  
EVE DAPKVVEPAS EREGGER  
EVE DVPKVVEPAS EREGGER  
EVE NVPKVVEPAS EREGGER  
EVE DAPKVVEPAS EREGGER  
EVE DAPKVVEPAS EREGGER  
EVE DVPKVVEPAS EREGGER  
EVE DVPKVVEPAS EREGGER  
EVE DVPKVVEPAS EREGGER  
EVE DVPGVVEPAS GHEGGER  
EVE DVPGVVEPAS GHEGGER

EVA SQHTKQP~~S~~HVS NSAPNQFR KP

FIGURE 6

*T. pallidum* ssp. *Pertenue* (CDC-2) nucleotide sequence

ATGTTTGTGC	GCAGTGACAT	GTTCCCCAAA	AACACTGCTG	TTGAAATTAG
CAACTTAGAA	AAGAATGCCA	AGGCTCAGGC	AGTGTTATT	GGGCACGCAG
GGATCCCCGG	TCTTCTAGTT	AGCCTTGCCAC	CCGCTGCTGC	AGCACAGCTT
GGGATTGGCG	TATACCAAGC	TGTGCGTGTA	CGCGTACGTA	CCTTGGGTAC
CGTGCCGCGT	GGGTCTCAAA	CAAGTCAGGA	CGGACTGTCC	CTTGCATCTT
TGCCGTCCCG	TGTGCCTGCG	CGCCCCGCGC	AGCGTGATCC	TCTGTCAATCC
CCGCCCGGCAG	GTCACACTGT	ACCGGAATAT	CGCGATACGG	TTATTTCGA
TGACCCGCGT	TTGGTTCCC	CTTTGTCTCG	TGAGGTGGAG	GACGTGCCGA
AGGTAGTGGA	GCCGGCCTCT	GAGCGTGAGG	GAGGGGAGCG	TGAGGTGGAG
GACGTGCCGA	AGGTAGTGGA	GCCGGCCTCT	GAGCGTGAGG	GAGGGGAGCG
TGAGGTGGAG	GACGTGCCGA	AGGTAGTGGA	GCCGGCCTCT	GAGCGTGAGG
GAGGGGAGCG	TGAGGTGGAG	GACGTGCCGA	AGGTAGTGGA	GCCGGCCTCT
GAGCGTGAGG	GAGGGGAGCG	TGAGGTGGCT	TCTCAGCATA	CGAAGCAGCC
ATCCCACTCG	GTTTCCAACT	CAGCTCCCAA	TCAGTTTCGG	AAACCCCTGA

FIGURE 7

*T. pallidum* ssp. *Pertenue* (CDC-2) *arp* protein sequence

MFVRSDMFPK NTA VEISNLE KNAKAQAVVI GHAGIPGLLV SLAPAAAQQL  
GIGVYQAVRV RVRTLGTVRG GSQTSQDGLS LASLPSRVPA RPAQRDPLSS  
PPAGHTVPEY RDTVIFDDPR LVSPLSR  
  
EVE DVPKVVEPAS EREGGER  
EVE DVPKVVEPAS EREGGER  
EVE DVPKVVEPAS EREGGER  
EVE DVPKVVEPAS EREGGER  
  
EVA SQHTKQPSHS VSNAPNQFR KP

FIGURE 8

*T. pallidum* ssp. *endemicum* (Bosnia) nucleotide sequence

ATGTTGTGC	GCAGTGACAT	GTTCCTCCCAA	AACACTGCTG	TTGAAATTAG
CAACTTAGAA	AAGAATGCCA	AGGCTCAGGC	AGTGGTTATT	GGGCACGCAG
GGATCCCCGG	TCTTCTAGTT	AGCCTTGCAC	CCGCTGCTGC	AGCACAGCTT
GGGATTGGCG	TATACCAAGC	TGTGCGTGTA	CGCGTACGTA	CCTTGGGTAC
CGTGCGCGGT	GGGTCTCAA	CAAGTCAGGA	CGGACTGTCC	CTTGCACTCT
TGCCGTCCCG	TGTGCTGCG	CGCCCTCGGC	AGCGTGATCC	TCTGTGATCC
CCGCCGGCAG	GTCACTACTGT	ACCGGAATAT	CGCGATACGG	TTATTTTCGA
TGACCCGCGT	TTGGTTTCCC	CTTTGTCTCG	TGAGGTGGAG	GACGTGCCGA
AGGTAGTGGA	GCCGGCCTCT	GAGCGTGAGG	GAGGGAGCG	TGAGGTGGAG
GACGTGCCGA	AGGTAGTGGA	GCCGGCCTCT	GAGCGTGAGG	GAGGGAGCG
TGAGGTGGAG	GACGTGCCGA	AGGTAGTGGA	GCCGGCCTCT	GAGCGTGAGG
GAGGGAGCG	TGAGGTGGAG	GACGTGCCGA	AGGTAGTGGA	GCCGGCCTCT
GAGCGTGAGG	GAGGGAGCG	TGAGGTGGAG	GACGTGCCGA	AGGTAGTGGA
GCCGGCCTCT	GAGCGTGAGG	GAGGGAGCG	TGAGGTGGAG	GACGTGCCGA
AGGTAGTGGA	GCCGGCCTCT	GAGCGTGAGG	GAGGGAGCG	TGAGGTGGAG
GACGTGCCGA	AGGTAGTGGA	GCCGGCCTCT	GAGCGTGAGG	GAGGGAGCG
TGAGGTGGAG	GACGTGCCGA	AGGTAGTGGA	GCCGGCCTCT	GAGCGTGAGG
GAGGGAGCG	TGAGGTGGAG	GACGTGCCGA	AGGTAGTGGA	GCCGGCCTCT
GTTTCCAACT	CAGCTCCCAA	TCAGTTTCGG	AAACCTTGA	

FIGURE 9

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BY  
DATE

*T. pallidum ssp. endemicum* (Bosnia) arp protein sequence

MFVRSDMFPK NTA VEISNLE KNAKAQAVVI GHAGIPGLLV SLAPAAAAQL  
GIGVYQAVRV RVRTLGTVRG GSQTSQDGLS LASLPSRVPA RPAQRDPLSS  
PPAGHTVPEY RDTVIFDDPR LVSPLSR

EVE DVPKVVEPAS EREGGER  
EVE DVPKVVEPAS EREGGER  
EVE DVPKVVEPAS EREGGER  
EVE DVPKVVEPAS EREGGER  
EVE DVPKVVEPAS EREGGER  
EVE DVPKVVEPAS EREGGER  
EVE DVPKVVEPAS EREGGER  
EVE DVPKVVEPAS EREGGER

EVA SQHTKQPSHS VSNSAPNQFR KP

FIGURE 10

APPROVED	FIG.
BY	CLASS
DATE	SUBJECT

arp #1  
SEQ ID NO: 7 LVSP L REVEDAPKVVEPAS-

arp #2  
SEQ ID NO: 8 -SR-EVED APKVVEPASEREGG-

arp #3  
SEQ ID NO: 9 -PK VVEPASEREGGEREVEDA-

TP-arp #4  
SEQ ID NO: 10 PKNTAVEISNLE KNAKAQAVV

TP-arp #5  
SEQ ID NO: 11 GHAGIPGLLV SLAPAAAAQLGIGVY

TP-arp #6  
SEQ ID NO: 12 VPA RPAQRDPLSS PPAGHTVPEY RD

TP-arp #7  
SEQ ID NO: 13 VVEPAS EREGGEREVE DVPKV

TP-arp #8  
SEQ ID NO: 14 VVEPASGHEGGEREVA SQHT KQPSHS

TP-arp #9  
SEQ ID NO: 15 EVEDVPKVVEPASEREGGER

TP-arp #10  
SEQ ID NO: 16 EVENVPKVVEPASEREGGER

TP-arp #11  
SEQ ID NO: 17 EVEDAPKVVEPASEREGGER

TP-arp #12  
SEQ ID NO: 18 EVEDVPGVVEPASGHEGGER

FIGURE 11

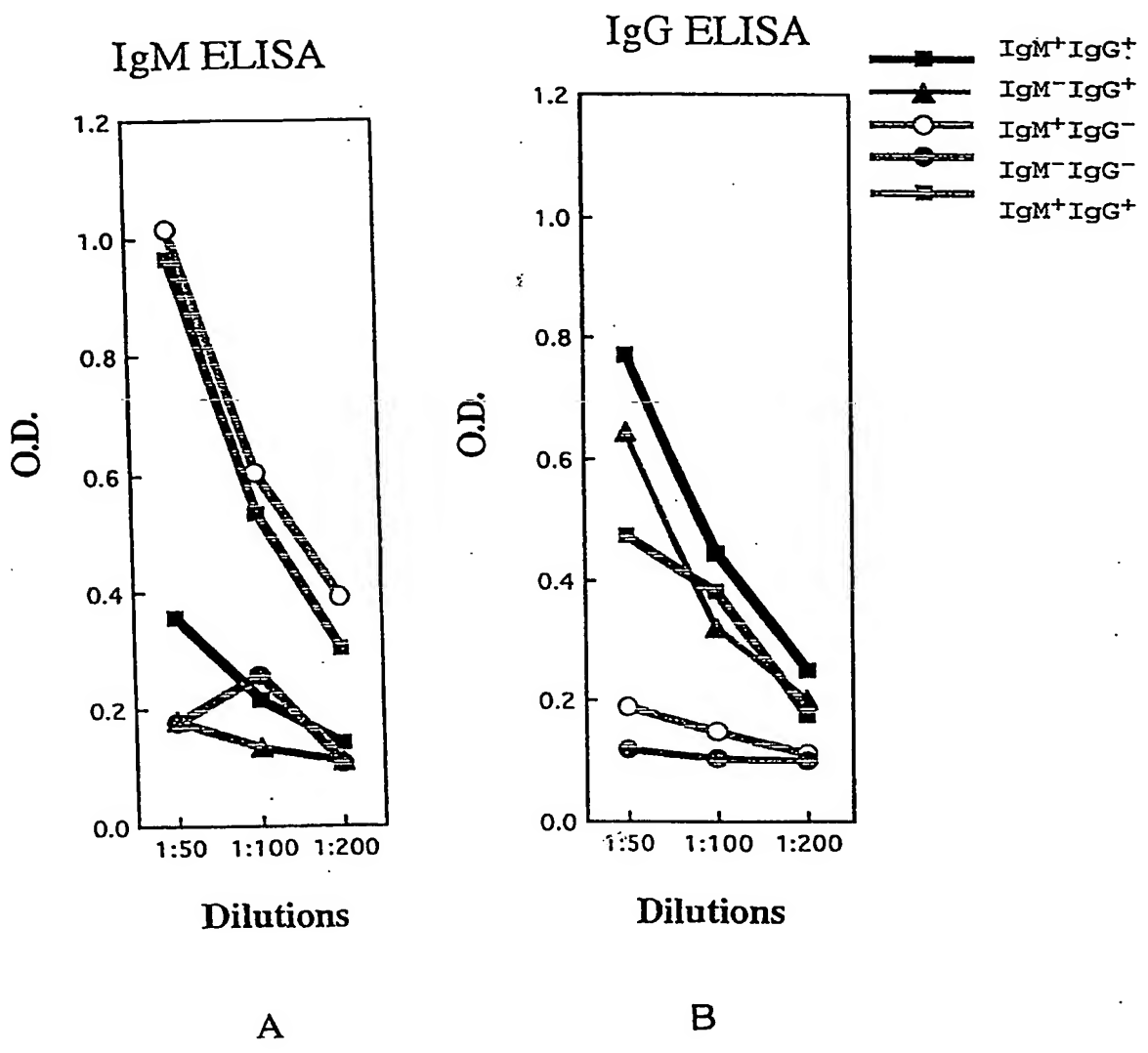


FIGURE 12

# *Flowcytometry analysis of arp 9*

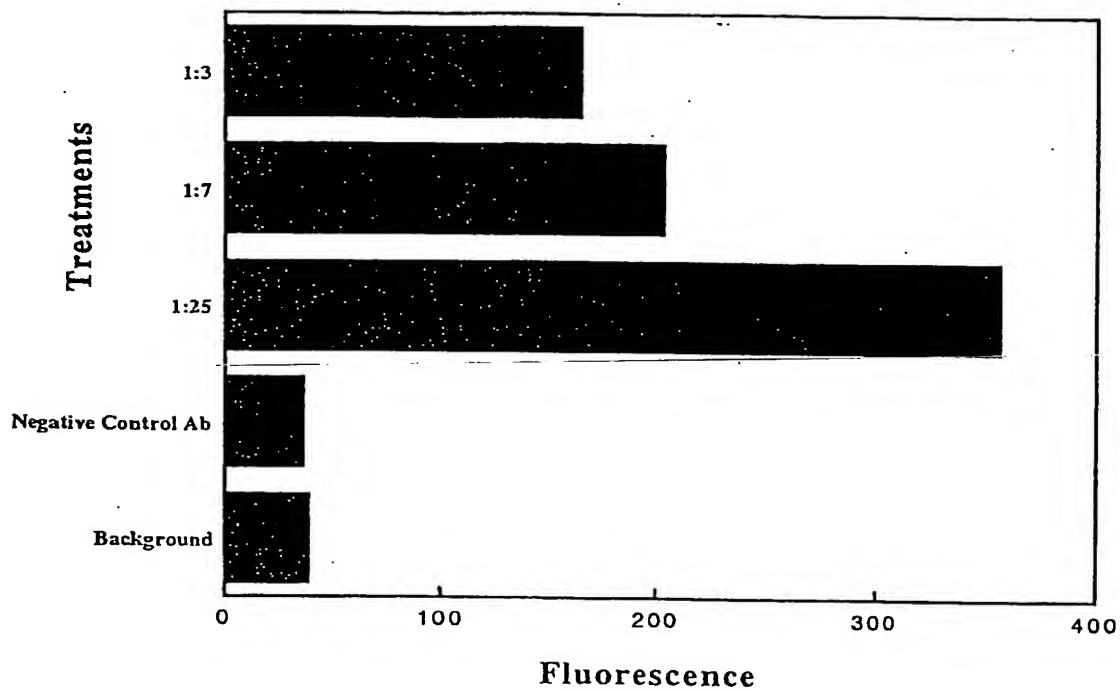


FIGURE 13

APPROVED	0	FIG.
BY	CLASS	SUBCLASS
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FIG. 14

*T. pallidum* subspecies. *pallidum*, Nichols strain

MFVRS DMFPK NTAVEISNLE KNAKAQAVVI GHAGIPGLLV SLAPAAAAQL  
GIGVYQAVRV RVRTLGTVRG GSQTSQDGLS LASLPSRVPA RPAQRDPLSS  
PPAGHTVPEY RDTVIFDDPR LVSPLS

REVEDAPKVVEPASEREGGE  
REVEDAPKVVEPASEREGGE  
REVEDVPKVVEPASEREGGE  
REVEDAPKVVEPASEREGGE  
REVEDVPKVVEPASEREGGE  
REVEDVPKVVEPASEREGGE  
REVEDAPKVVEPASEREGGE  
REVEDAPKVVEPASEREGGE  
REVEDVPKVVEPASEREGGE  
REVEDVPKVVEPASEREGGE  
REVEDVPKVVEPASEREGGE  
REVEDVPKVVEPASEREGGE  
REVEDVPKVVEPASEREGGE  
REVEDVPGVVEPASGHEGGE  
REVEDVPGVVEPASGHEGGE

Type I: 1, 2, 4, 7, 8  
Type II: 3, 5, 6, 9, 10, 11, 12  
Type III: 13, 14

REVA SQHTKQPSHS  
VSNSAPNQFRNPEGELPFTLPDLSESEIVVPEEQKGRAHP  
QVIPEGAPRG LQPGEYYVQI AVFHDAIQVQ SIVHRYGVEYPIAVEQDIHE  
GKVRFTVCVG PVQKDERGAV  
LENFQRFQFK DAFLKKAR

APPROVED	FIG.	
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DRAFTSMAN		

1 2 3 4 5 6 7 8 9 10 11 12

FIG. 15

*T. pallidum* subspecies *pertenue*, CDC-2 strain

MFVRS DMFPK NTAVEISNLE KNAKAQAVVI GHAGIPGLLV SLAPAAAAQL  
GIGVYQAVRV RVRTLGTVRG GSQTSQDGLS LASLPSRVPA RPAQRDPLSS  
PPAGHTVPEY RDTVIFDDPR LVSPLS

REVEDVPKVV EPASEREGGE  
REVEDVPKVV EPASEREGGE  
REVEDVPKVV EPASEREGGE  
REVEDVPKVV EPASEREGGE

REVA SQHTKQPSHS VSNSAPNQFR NPEGELPFTL PDLSESEIVV  
PEEQKGRAHP QVIPEGAPRG LQPGEYYVQI AVFHDAIQVQ SIVHRYGVEY  
PIAVEQDIHE GKVRFTVCVG PVQKDERGAV LENFQRFQFK DAFLKKAR

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BY	CLASS
DATE	SUBCLASS

FIG. 16

*T. pallidum* subspecies *endemicum*, Bosnia strain

MFVRS DMFPK NTAVEISNLE KNAKAQAVVI GHAGIPGLLV SLAPAAAAQL  
GIGVYQAVRV RVRTLGTVRG GSQTSQDGLS LASLPSRVPA RPAQRDPLSS  
PPAGHTVPEY RDTVIFDDPR LVSPLS

REVEDVPKVVEPASEREGGE  
REVEDVPKVVEPASEREGGE  
REVEDVPKVVEPASEREGGE  
REVEDVPKVVEPASEREGGE  
REVEDVPKVVEPASEREGGE  
REVEDVPKVVEPASEREGGE  
REVEDVPKVVEPASEREGGE  
REVEDVPKVVEPASEREGGE

REVA SQHTKQPSHSVSNSAPNQFR NPEGELPFTL PDLSESEIVV  
PEEQKGRAHP  
QVIPEGAPRGLQPGEYYVQI AVFHDAIQVQ SIVHRYGVEY PIAVEQDIHE  
GKVRFTVCVGPVQKDERGAV LENFQRFGFK DAFLKKAR

APPROVED	FIG.
BY	CLASS SUBCLASS
DATE	

FIG. 17

*T. pallidum* subspecies. *pertenue*, CDC-1 strain

MFVRS DMFPK NTAVEISNLE KNAKAQAVVI GHAGIPGLLV SLAPAAAAQL  
GIGVYQAVRV RVRTLGTVRG GSQTSQDGLS LASLPSRVPA RPAQRDPLSS  
PPAGHTVPEY RDTVIFDDPR LVSPLSREGGE

REVEDVPKVVEPASEREGGE  
REVEDVPKVVEPASEREGGE  
REVEDVPKVVEPASEREGGE  
REVEDVPKVVEPASEREGGE  
REVEDVPKVVEPASEREGGE  
REVEDVPKVVEPASEREGGE

REVASQHTK QPSHSVSNSA PNQFRNPEGE LPFTLPDLSE SEIVVP EEQK  
GRAHPQVIPE GAPRGLQPGE YYVQIAVFHD AIQVQSIVHR YGVEYPIAVE  
QDIHEGKVRF TVCVGPVQKD ERGAVLENFQ RFGFKDAFLK KAR